SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Determine deciles for the dataset: 12, 17, 22, 27, 32, 37, 42, 47, 52, 57, 62

17. Find the mode for the following distribution

Class	0–10	10–20	20–30	30–40	40–50
Frequency	4	6	9	15	22
Class	50–60	60–70	70–80		
Frequency	18	14	7		

18. Calculate the Mean and Standard deviation for the following table giving the age distribution of 542 members.

Age in Years	20–30	30–40	40–50	50–60	60–70
No. of members	3	61	132	153	140
Age in Years	70–80	80–90			
No. of members	51	2			

19. If the distribution has a coefficient of skewness of 0.8, interpret whether it is positively or negatively skewed and describe its significance.

20. Given the regression equation:
$Y = 3X + 5$
Find Y when $X = 10$ and Find X when $Y = 50$.

Shanmuga Industries Arts & Science College T.V.Malai

APRIL/MAY 2025

23UESC32A/23UECS32A — STATISTICAL METHODS AND THEIR APPLICATIONS - I

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Define statistics.
2. State the difference between Discrete and Continuous Data.
3. Define arithmetic mean.
4. What is harmonic mean used for?
5. Differentiate between mean deviation and quartile deviation.
6. State the advantages and disadvantages of using range as a measure of dispersion.
7. Define Skewness.
8. List types of Kurtosis.

9. Define correlation.

10. What is Spearman's rank Correlation?

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SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) Explain the importance of tabulation in statistics.

Or

(b) Find the percentile rank of the value 40 in the given dataset:

10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

12. (a) Compute Mean of the following Distribution.

Class	5–15	15–25	25–35	35–45	45–55
Frequency	12	18	24	15	11

Or

(b) Find the Median wage of the following distribution.

Class	20–30	30–40	40–50	50–60	60–70
Frequency	15	22	29	34	41

13. (a) If two groups of students have standard deviations $\sigma 1 = 4$ and $\sigma 2 = 6$, find the combined standard deviation when they are merged into one group.

Or

(b) Calculate the range for the dataset: 15, 28, 39, 44, 56, 67, 78.

14. (a) Find the fourth central moment of the dataset 5, 10, 15, 20, 25 and determine its kurtosis.

Or

(b) Compute the Karl Pearson's coefficient of skewness from the following data:

Height (in inches)	58	59	60	61	62	63	64	65
Number of Persons	10	18	30	42	35	28	16	8

15. (a) The following are the marks in Maths (X) and Physics (Y) for 6 students.

X	10	15	20	25	30	35
Y	12	18	24	28	35	40

Find the coefficient of Rank correlation:

Or

(b) Calculate the Karl Pearson's coefficient for the following weights of Fathers (X) and their Sons (Y).

X	65	66	67	68	69	70	70	72
Y	67	68	65	68	72	72	69	71